

A bald eagle with a white head and neck, a yellow beak, and dark brown body feathers is perched on a mossy evergreen branch. The background is a dense forest of similar trees.

THERMAL

ENGINEERING COMPANY

A DIVISION OF AIRSERCO MANUFACTURING

2011 PRODUCT CATALOG

PURSUING THE 'COOL' ALTERNATIVE

HVAC/R Accessories, Vacuum Gauges, Compressor Tools,
Oil Pumps, Vacuum Pumps, Vacuum Accessories, Charging Scales,
Charging Cylinders, Hoses, Vocational Training Units

www.thermalengineeringcompany.com | 800 473-1754

THERMAL ENGINEERING COMPANY

Founded over 40 years ago on the principles of innovation, quality, and service, Thermal Engineering has developed a line of HVAC/R service tools that continue to satisfy the needs of the HVAC/R professional. As a division of the Airserco Manufacturing Company, we continue to adhere to the original founder's principals by developing quality products that meet the needs of the global HVAC/R service market, and backing those products with a high level of customer service.

The full spectrum of Thermal Engineering's product offering is presented in this catalog. For your convenience, items have been indexed by product category along with a handy product reference. We also encourage you to visit our web site at www.thermalengineeringcompany.com for our most current product offerings, new product introductions, technical information, and buying locations.

For 2011 we are pleased to feature the following:

- **TERF Series Flare Connections, page 36**
- **T-516 Square Head Bold Socket Adapter, page 7**
- **4775 Handheld Digital Micron Gauge, page 16**
- **GL-1000 Compressor Terminal Repair Kit, page 19**

Thank you for your interest in our products and your continued support!

Sincerely,



Timothy Winings, President

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CAP-CHECK

The **Cap-Check** is a Thermal Engineering innovation that has made cap tube cleaning possible and practical, it is designed to pump a high rate of oil into the cap tube to build up pressures needed to open any plugged cap tube, and will clean partially plugged cap tubes when used with the Thermal Chaser Kit.

CAP-CHECK

MODEL 1003


Cap-Check is a portable, self contained hydraulic power unit with auxiliary equipment especially adapted to cleaning refrigeration capillary tubes. A 0-5000 PSI gauge shows pressure build-up if cap tube is restricted and also shows when chaser has passed through the tube. A trigger operated gauge shutoff is provided so the gauge will not be damaged if pressures greater than 5000 PSI are desired. A 30-inch high pressure hydraulic hose with a 1/4-inch SAE male flare outlet connects the cap tube to the Cap-Check for simple handling. An adapter is supplied to connect the cap tube directly to the hose outlet without a flared fitting.

CAP-CHECK CHASER KIT

MODEL 1101


Chaser Kit is the only means available to clean partially plugged cap tubes, it must be used with the Thermal Cap-Check since no other cap tube cleaning tool provides a rate of oil flow large enough to remove partial restrictions even from the smallest cap tubes. The Chaser Kit consists of 10 spools of lead alloy wire which can be used as a chaser for the 10 most popular sizes of cap tubes (.028, .031, .036, .039, .042, .046, .050, .055, .064, .070). In addition to the wire, a cap tube gauge, a set of sizing tools, and a combination file/reamer are all included in a durable metal case.

CAP-CHECK OUTFIT

MODEL 5101


Cap-Check Outfit provides both the Cap-Check and Chaser Kit in one compact case along with an extended base that holds the Cap-Check. The Cap-Check can be operated with one hand, allowing high pressures to be easily pumped. Carrying case has clips to hold Cap-Check, Chaser Kit, hose, handle, and extended base.

CAP-CHECK ACCESSORIES

A capillary tube is the most likely place a **blockage** in a system can occur and can cause a system to operate very **inefficiently**. Therefore it is essential to have the proper tools on hand to fix this very common problem. Below are accessories that we recommend for the Cap-Check and your service arsenal.

CAP-CHECK REPAIR KIT

MODEL 1003RK

Complete Set of gaskets, "O" rings, springs, and balls for Model 1003 Cap-Check, with instructions.

0-5000PSI GAUGE

MODEL 1011

High pressure gauge for Model 1003 Cap-Check with a pressure range from 0-5000psi.

30-INCH HYDRAULIC HOSE (REPLACEMENT)

MODEL 1012

30-inch high pressure hydraulic hose with a 1/4-inch SAE male flare outlet.

CAP-GAUGE

MODEL 1102

Cap-Gage is a pocket knife type cap tube gauge with 10 stainless steel gauges to measure the most popular sizes of cap tubes (.028, .031, .036, .039, .042, .046, .050, .055, .064, .070).

CARRYING CASE

MODEL 1201

Store your Cap-Check in this heavy duty case that provides maximum protection from wear and tear when not in use.

EXTENDED BASE

MODEL 1301

This extension for the base of the Cap-Check provides better accessibility in certain situations.

CAPILLARY TUBING

Thermal Engineering's quality capillary tubing available in 100ft. coils.

CAP TUBING SIZES	
PART NO	SIZE
CT-31-100	.031 ID X 100 FT
CT-36-100	.036 ID X 100 FT
CT-42-100	.042 ID X 100 FT
CT-49-100	.049 ID X 100 FT
CT-54-100	.054 ID X 100 FT
CT-59-100	.059 ID X 100 FT
CT-64-100	.064 ID X 100 FT
CT-70-100	.070 ID X 100 FT

SYSTEM TESTER

Make **on-the-spot** readings with our **easy-to-use** HandyStat. Very useful for troubleshooting a system!

HANDYSTAT

MODEL HS-1



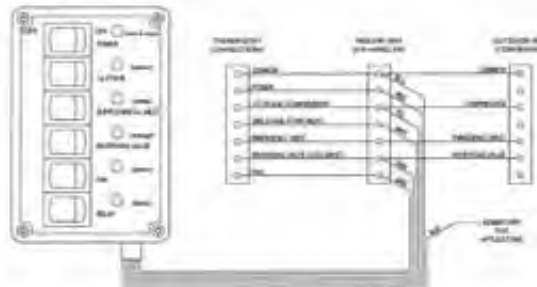
Save the steps, time and money to make system tests with a single tool.

FEATURES

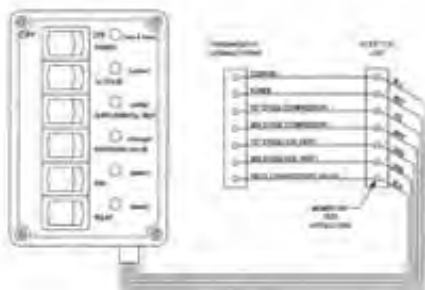
- Check out thermostat and control wiring output
- Operate individual system components for test purposes:
Compressor, Fan, Heaters, Reversing Valves
- Convenient momentary switch for quick ON-OFF activation
- Connects to the control wiring at the point of service
- Great on Roof Top Units and Light Commercial Applications

WARRANTY: 12 MONTHS FROM DATE OF PURCHASE

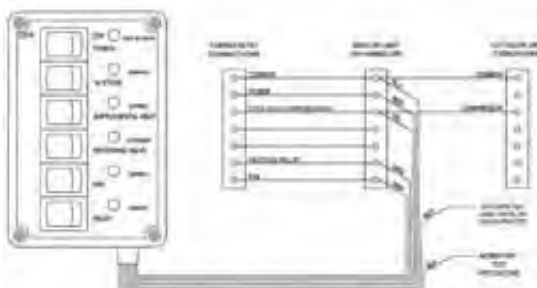
WIRING CONNECTIONS FOR USE ON RESIDENTIAL HEAT PUMP SYSTEMS



WIRING CONNECTIONS FOR USE ON LIGHT COMMERCIAL HEAT PUMP SYSTEMS



WIRING CONNECTIONS FOR USE ON OIL OR GAS FURNACES WITH AIR CONDITIONING SYSTEMS



VIZI-VAPR

*Many problems can arise from improper charging of any type of refrigeration system. **Vizi-Vapr** makes it possible to correctly charge a system every time. Liquid refrigerant being charged is transformed into a saturated vapor through a small orifice which thereafter can be **viewed** to ensure the system gets charged properly.*

VIZI-VAPR CHARGER

MODEL 7701

The Vizi-Vapr eliminates the problem of slow vapor charging by removing the refrigerant from the cylinder as a liquid and injecting it into the system as a saturated vapor. Since the liquid refrigerant is removed from the cylinder by its own pressure, no heat is removed from it and the cylinder does not get cold. Refrigerant blends must be removed from their containers as liquid. Using the Vizi-Vapr, the blend can be charged into the system as a saturated vapor without any composition change. Vizi-Vapr is adjustable from 1/8hp up to 50hp. The operation is completely visible so there is little danger of liquid entering the system.



VIZI-VAPR REPAIR KIT

MODEL 7701RK

Complete set of gaskets, “O” rings, and back-up rings required for repairing the 7701 Vizi-Vapr.

SQUARE HEAD BOLT SOCKET ADAPTER

THE SQUARE WONDER™ SQUARE HEAD BOLT SOCKET ADAPTER

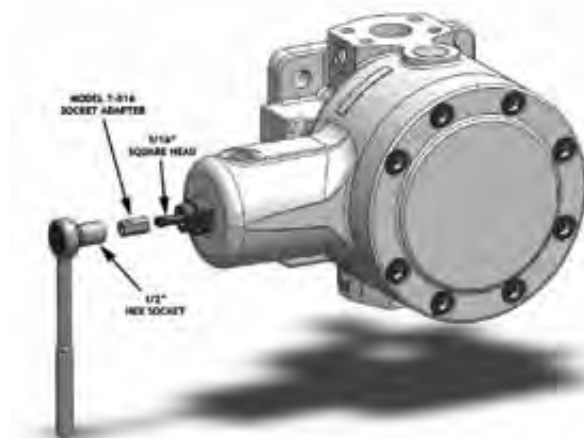
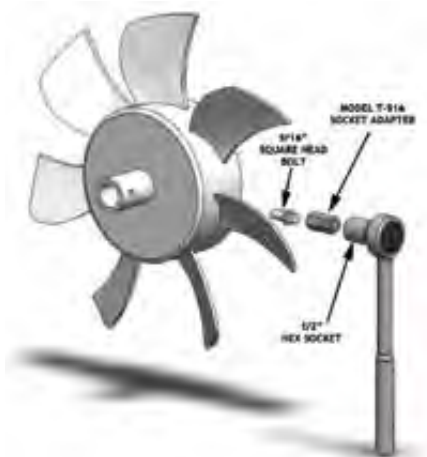
MODEL T-516



This incredible tool fits into 1/2 inch hex sockets and enables the technician to easily remove 5/16" square head locking bolts. It allows easy access to places where valve wrenches will not work or when more leverage is required.

COMMON APPLICATIONS INCLUDE:

- Refrigeration & A/C service valves
- Condenser fan blades with bottom side and right side up hubs
- Small and large concave blower wheels
- Beam clamps for hanging all-thread rods (used in electrical, plumbing and A/C applications)
- Square head lag screws
- Pipe plugs, pump heads for gauge ports, water and pneumatic plugs, gas furnace manifold plugs
- Adjustment screws for pressure switches
- Great for Carrier, York, Addison, Rheem, Aeon, Bard, Trane and many more.



HEATERS

Quick and easy process of pressurizing a refrigerant supply cylinder to move any refrigerant to another vessel.

CYLINDER HEATER

MODEL 3054

A quick, convenient, easy-to-use means to pressurize refrigerant supply cylinders to move any refrigerant to another vessel or charging dispenser, the 3054 Cylinder Heater is designed to fit 30lb. and 50lb. containers. It also can be used on 125lb. cylinders and fits the refrigerant cylinders in many recovery units. The device consists of a 6 x 28 flexible silicone rubber heating element with extra-long Velcro straps, built-in molded thermostat, and power cord. The heater draws 200 watts at 120 VAC and has a 135° preset thermostat.

Model 3054-230V

230 Volt model available for European market.



CYLINDER HEATER

MODEL 4054M

The 4054M Refrigerant Cylinder Heater is designed to automatically maintain any desired pressure within a range of 80 to 250 PSIG. Pre-set at 160 PSIG, the unit can be easily adjusted in the field. The heating element also incorporates a 135° pre-set thermostat as a safety backup to the pressure control.

Fits 125/145 lb. refrigerant supply cylinders.

- Accurate and adjustable pressure control
- Safe and easy-to-use
- Complete, including valve and charge hose
- Energy-efficient

The 4054M includes three basic components:

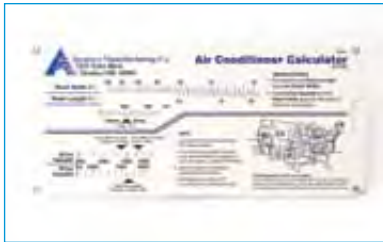
1. The control manifold, which adapts directly to the cylinder's liquid valve and includes a visual refrigerant indicator, pressure gauge, quarter-turn ball valve, heavy-duty 6ft. charging hose, adjustable pressure switch with power supply cord and female connector for accepting the heating element.
2. A 350 watt, 120 VAC heating element with built-in safety thermostat and power cord that plugs into the control manifold. The 12 x 28 heating element is secured with Velcro straps.
3. A special insulating cover that includes a Velcro seam and fits over the entire cylinder to improve efficiency.

CALCULATORS

Reference points on a variety of topics and scales to make even the most technically demanding jobs a breeze.

ROOM AIR CONDITIONER CALCULATOR

MODEL 5100



Used to determine size of air conditioner unit with allowances for:

- Exposed and unexposed walls
- Exposed and unexposed windows
- Roof and ceiling insulation
- Heat gain from number of people
- Location

This calculator selects amount of capacity needed in a cooling load of 5000-24000 BTUs per hour, and indicates the size of unit required in BTU ratings. The calculator not only simplifies the job of specifying window air conditioners, but also eliminates misapplication and paper work. An ideal service and sales tool for the estimator and service engineer, the calculator is imprinted with full directions.

AIR DUCT CALCULATOR

MODEL 5125



This ingenious, pocket-size Air Duct Calculator uses only three slides to give all of the information needed when figuring the sizes of air ducts. Convenient tables printed on the back of the calculator supply additional data in a handy, easy-to-use form. The few words of instruction needed to understand and use the different slides are printed on the calculator face, where they cannot be lost or mislaid.

Used to determine:

- Size of air ducts by the equal pressure loss method
- Size of round ducts vs. rectangular ducts
- Weight per foot of round ducts by U.S.S. gauge
- Weight per foot of rectangular ducts by U.S.S. gauge
- Recommended duct velocities
- Friction loss of 1-1/2 radius elbows
- Gauge of metal for size of ducts

HUMIDITY CALCULATOR

MODEL 5150



Designed for determining the percent of relative humidity when using any standard sling psychrometer, this calculator eliminates the use of psychrometric charts from 60° to 100°F. The reverse side of the calculator has a chart of recommended humidities according to industry application and temperature.

CALCULATORS

*On-the-fly calculations can be made **very easily** to help troubleshoot a system, **saving you valuable time!***

TROUBLESHOOTING CALCULATOR

MODEL 5175

This calculator simplifies the job of diagnosing cooling system troubles. Ideally suited to the needs of the expert as well as of the needs of the trainee, it provides immediate reference, from COMPLAINT to POSSIBLE CAUSE to REPAIR.

FEATURES

- 19 major 'Complaint' sections
- 32-part 'Trouble Shooting' Index
- 127 'Possible Cause' items
- All items keyed to 'Repair' window



CAPILLARY TUBE AND TROUBLESHOOTING CALCULATOR

MODEL 5180

TWO SLIDE CHARTS IN ONE

This is a dual-purpose slide chart. One side is a new, scientific approach for selecting readily available standard capillary tubing sizes to replace the hard-to-get sizes that original manufacturers often recommend. The other side is a trouble shooting calculator that simplifies the job of diagnosing cooling system trouble where the capillary tube is suspect.



REFRIGERATION CALCULATOR

MODEL 5300

A time-saving and easy-to-use calculator to supply technical refrigeration data:

- Hermetic terminal colors
- Thermostatic control settings
- Pressure control settings
- Head and back pressures
- Hermetic motor diagrams
- Temperature pressure chart

The calculator graphically shows vital refrigeration data and provides service information not available in any other form.



BOOKS

REVIEW OF VACUUM FOR SERVICE ENGINEERS

MODEL 52

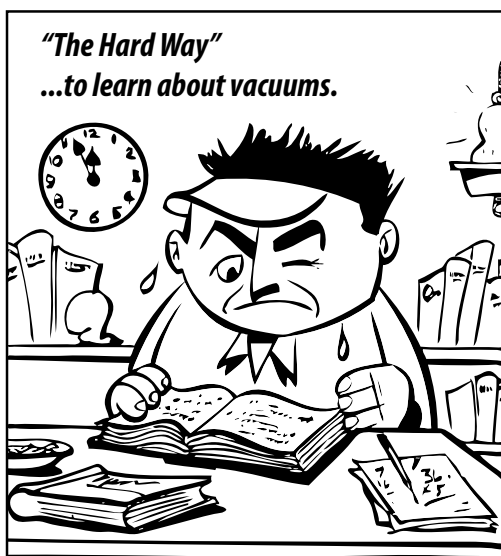


The story of how vacuum is used as a tool to dehydrate and degas a refrigeration system. This text is the only publication that clearly and non-technically explains vacuum fundamentals for the service man or engineer.

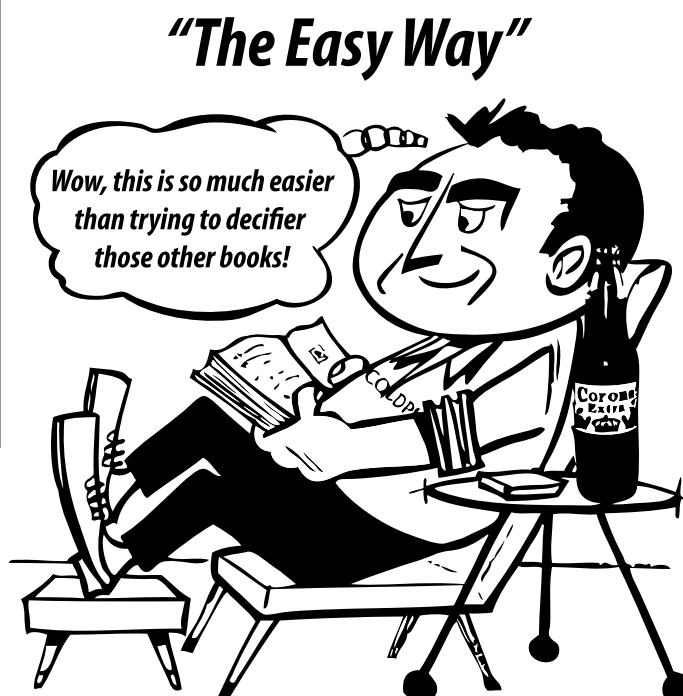
Illustrated with charts, photographs, and diagrams, this authoritative handbook describes and explores vacuum terms, properties, uses, activities, advantages, limitations, and techniques.

FEATURES

- Covers key service-related topics
- Vital for processing engineer, serviceman
- What vacuum means
- How a pump works
- Sizing high vacuum pumps and lines
- Vacuum gauges procedure for dehydration, degassing, leak detection



Take "The Easy Way" with
"Review of Vacuum for Service Engineers"
 by
 Saunders & Williams



LEAK DETECTION

225

REFRIGERANT LEAK DETECTOR

MODEL HLD-1201

Building on their successful line of leak detection products, Thermal Engineering introduces the HLD-1201 refrigerant leak detector. This durable hand held detector has increased sensitivity of up to 3 grams/0.105 ounces per year and a pump for faster response time. Utilizing newly developed semi-conductor gas sensing technology, the HLD-1201 is ideal for diagnosing leaks on air-conditioning and cooling systems utilizing a wide variety of common refrigerants.

FEATURES

- Heated semiconductor gas sensor
- High low leak sensitivity selector, 3 levels of sensitivity
- Bright LED display
- Ambient concentration reset
- Includes durable carrying case and reference source
- Optional DC adapter 3.3V 0.5A

SPECIFICATIONS

- Alarm method: Buzzer, Tri-color LED Bar Indicator
- Power usage: (4) AAA size (6V DC) Alkaline batteries
- Snake tube length: 15.5 inches (40cm)
- Dimensions / Weight: 173mm x 66mm x 56mm (400 grams)
6.8-inches x 2.6-inches x 2.2-inches (14.1 oz)
- Accessories: Alkaline batteries (4 pieces), user manual, leak check bottle, carrying case
- Battery Life: 7 hours normal usage
- Auto Power off: 10 minutes
- Disable Auto Power off: Press and hold (HI) button then power on the meter



LEAK DETECTION SENSITIVITY			
SENSITIVITY	HI	MEDIUM	LO
R-22, R-134A	0.105 OZ (3G) /YEAR	0.529 OZ (15G) /YEAR	1.05 OZ (30G) /YEAR
R-404A, R-407C, R-410A	0.141 OZ (4G) /YEAR	0.705 OZ (20G) /YEAR	1.41 OZ (40G) /YEAR

LEAK-TEC

MODEL 4014



FEATURES

- Fast, quickly finds and pinpoints the smallest of leaks
- Safe, does not affect metal or rubber and is nonflammable
- Economical, a few drops do the job
- Convenient, unbreakable dispenser bottle
- Stocked in 4oz. and 8oz. squeeze bottles, and 1 gallon jugs

Leak-Tec is a non-toxic, nonflammable liquid that produces a white foam of live bubbles at the point of leakage. The high viscosity enables the liquid to cling to surfaces long enough to pinpoint leaks as small as .05oz. per year. The liquid spreads quickly and penetrates oil and grease films common on metal surfaces. Used in small amounts, the mass of bubbles will continue to foam as long as pressure is maintained on the equipment being tested. Leak-Tec is stocked in 4oz., 8oz. and 1 gallon containers in two different formulas to fit most applications. Additional formulas and container sizes are also available as special order.



THREAD CONNECTIONS

SPECIFICATIONS

No.4014 Formula 372E

Application: compressed air and stable gases

Sensitivity: 1×10^{-5} std. cc of air per sec.

Temperature Range: +35°F to +160°F

AVAILABLE SIZES	
PART NO	CONTAINER
4014	4 OZ
4014-8OZ	8 OZ
4014-G	GALLON



MACHINE SURFACE CONNECTIONS

SPECIFICATIONS

No.4015 Formula 372G

Application: Refrigerants, low temp,

Sensitivity: 1×10^{-4} std. cc of air per sec.

Temperature Range: -35°F to +180°F

AVAILABLE SIZES	
PART NO	CONTAINER
4015	4 OZ
4015-8OZ	8 OZ
4015-G	GALLON



SOLDERED OR WELDED CONNECTIONS

OTHER SIZES AVAILABLE AND SPECIAL FORMULAS AVAILABLE.

ULTRASONIC LEAK DETECTOR TYPE VPE**MODEL 9997****FEATURES**

- Detects any type of refrigerant gas
- Battery-powered for cordless operation
- Does not require tracer gases
- Detects vacuum and pressure leaks
- Headset and padded carrying case included
- Adjustable sensitivity

The VPE Leak Detector represents state-of-the-art technology for pin-pointing leaks in air conditioning/refrigeration systems. Able to detect both vacuum and pressure leaks, the VPE overcomes the disadvantages inherent in other types of leak detectors. No ultraviolet dyes or tracer gases are necessary, and the VPE can detect any gas, even in a gas-saturated environment. The VPE offers both visual and sound identification via the LED display and the included headset. Lightweight and easy to use, the VPE is a tool every technician should have.

SPECIFICATIONS

Nominal sensitivity: -80db / V / uBar

Frequency response: 38 to 42 kHz

Display: 10-bar element graph audio output

Power: 9V cell

Battery life: 15 hrs. continuous

Headset: dynamic 32 ohm

Size: 4.56 x 2.40 x .866

Weight: 1/2lb.

Housing: durable PVC/aluminum



PART NO	CONTAINER
9997	PVC

VAK-CHECK



For proper evacuation and dehydration of refrigeration and air conditioning systems, an electronic vacuum gauge is an indispensable companion to a vacuum pump. Significant dehydration does not occur until a vacuum of **1000 microns or greater** has been achieved. Use of electronic vacuum gauges is the **only way** to determine when dehydration is occurring and when it is complete.

Thermal Engineering Vak-Checks are precision thermistor vacuum gauges designed especially for refrigeration and air conditioning service. They **automatically** compensate for changes in ambient temperature and permit continuous monitoring during evacuation. These instruments are compact, lightweight, easy to use, and read directly in microns on a large easy-to-read meter.

VAK-CHECK

MODEL 4501


FEATURES

- Atmosphere to 10 microns
- Ambient temperature compensated
- Accuracy: 200-1000 microns: $\pm 5\%$
- Comes complete with Model 4510 Sensor
- Battery powered, No searching for outlets (2 "D" cell batteries not included)

SUPER VAK-CHECK II

MODEL 14571


This analog thermistor vacuum gauge allows you to choose between 110AC and battery as your power source with the same features as the Model 4501.

FEATURES

- AC/battery operated
- Range: Atmosphere to 10 microns
- Ambient temperature compensated
- Complete with Model 4510 Sensor
- Accuracy: 200-1000 microns $\pm 5\%$
- Power: 110AC or 2 "D" cell batteries (Batteries not included)

REPLACEMENT VACUUM SENSORS

MODEL 4510


FEATURES

- Vacuum Sensor for Vak-Check, Super Vak-Check, and Super Vak-Check II
- Models 4501, 4575 and 14571 with 0 to 50 calibration scale



VAC-SCALE

Saving the service technician time and money, Thermal Engineering provides the ability to combine digital hand held vacuum gauge technology with strain gauge technology for refrigerant charging. The 4775 and 4975 are the first components of Thermal Engineering's new Adaptable™ Tool Series.

HANDHELD DIGITAL MICRON GAUGE

MODEL 4775

Thermal Engineering is pleased to introduce the 4775 handheld digital micron gauge. Backed by Thermal's 45 years of vacuum technology the 4775 borrows from the old while incorporating advanced new features including (7) units of measure, an LCD backlight, LCD contrast control, and a vacuum minimum/maximum function that stores the last vacuum reading in memory. Lightweight and easy to use, the 4775 will provide the discriminating service technician with a dependable instrument for accurately measuring vacuum in an air-conditioning or refrigeration system.

FEATURES

- Ergonomic durable case
- Auto shutoff
- LCD backlight and contrast
- Multiple units of measure



SCALE / VACUUM COMBO UNIT

MODEL 4975

Building on its reputation for delivering innovative products to the HVAC/R industry, Thermal Engineering is proud to introduce the 4975, a combination charging scale and digital vacuum gauge. As the first launch of its new Adaptable™ Tool Series, the 4975 scale/vacuum combo tool fits nicely in one compact carrying case and eliminates the need for the service technician to carry multiple tools, saving time and money.

The scale provides 220 lb. (100kg) weight capacity with a resolution up to a 1/4oz. and the ergonomically designed digital vacuum gauge features an internal thermistor gauge, a high resolution back lit LCD, high and low vacuum memory option, and (7) vacuum readings. Warranty, 1 year.

CHARGING SCALE FEATURES

- Heavy duty portable carrying case
- Large anti-slip weighing platform
- Measures imperial or metric
- Modern strain gauge technology

VACUUM SCALE FEATURES

- Ergonomic durable case
- Auto shutoff
- LCD backlight and contrast
- Multiple units of measure



HERMETI-CHECK



Hermetic compressors are permanently sealed which means there is little you can do to fix one that is broken on the inside, however with the following tools brought to you by Thermal Engineering, you can test the compressor for any electrical problems it may have which can help determine the appropriate actions to take.

HERMETI-CHECK

MODEL 2001



Hermeti-Check tests all single phase compressors up to 5 HP, 110, 220 or 277 volts.

FEATURES

- Tied-up compressors may be freed by reversing motor rotations
- Tests windings for opens, continuity, and grounds
- Tests start and run capacitors and system relays by substitution
- Measures running amps, 0-10, 50A range
- Measures start and run volts, 0-150, 600V AC ranges
- Compressors are tested in the manner in which they were designed to operate:
Split-phase, capacitor start, or PSC
- Has provisions for connecting external run capacitor. (1) 30A breaker protected to allow high starting current with adequate overload protection
- Complete with 220V adapter cord and capacitor leads



HERMETI-CHECK

PROFESSIONAL SERIES DIGITAL HERMETIC ANALYZER

MODEL 12501A

FEATURES

- Easy to read digital LCD display
- Tests and runs 110, 220 or 277 volt 50/60 Hz single phase compressors up to 5 HP
- Tied-up compressors may be freed by reversing motor rotation
- Tests windings for opens, continuity, and grounds
- Checks capacitors for leaks, opens, and shorts
- Measures capacitor values, 0-200, 0-2000 MFD ranges
- Automatic capacitor discharge
- Measures compressor amps, 0-30A
- Measures start and run volts, 0-600VAC
- Measures winding resistance, 0-2000 ohm
- 500V megger for testing compressor windings for grounds
- Compressors are tested in the manner in which they were designed to operate:
- Split-phase, capacitor start, or PSC
- Multiple internal starting capacitors: 100, 200 and 400 MFD values
- Has provisions for connecting external run capacitor
- 30A breaker protected
- Complete with 220V adapter leads and capacitor leads

UPGRADED FEATURES

- Combined run and start information onto single screen
- Each screen describes what it is measuring
- New safety features prevent switching from high voltage to low voltage measurement until charge has dissipated
- Compressor cannot be started unless selector switch is in a run mode



WEIGHT	POWER	DIMENSIONS
5.5 LBS	110, 220, OR 277 VAC 50/60 HZ	13 1/2 X 10 X 4

ACCESSORIES



A compressor may just have a bad electrical part. These accessories will help determine **exactly** what is going on.

QUIK-START

MODEL 2601



Quick-Start starts all single phase compressors up to 5 HP 110, 200, 277V AC. A trouble-shooting aid for determining whether fault lies with compressor or component parts. Fusetron protects against shorts and overloads, but allows high starting load. Capacitor leads provide means of starting split phase, capacitor start, or permanent split capacitor compressors.

TEST LEAD KIT

MODEL 2605



Test Lead Kit consists of 4 leads 30-inch long with insulated test clips in each end for temporarily connecting relays, capacitors, etc., into a system for test purposes and has a 6ft. heavy duty power cord with a male plug on one end and insulated test clips on the other. Also has a 12-inch power cord with a female socket on one end and Insulated clips on the other.

QUIK-START + TEST LEAD KIT COMBO

MODEL 2602

Combination of Model 2601 Quick-Start and Model 2605 Test Lead Kit.

ADAPTER CORD

MODEL 2136

Provides a 12-inch 3-wire grounded power cord with standard female plug on one end and insulated clips on the other end. This cord is supplied as standard equipment with Models 2001, 2605, and 12501A.

COMPRESSOR TERMINAL REPAIR KIT

MODEL GL-1000



The GL-1000 Gator-Lok is designed to repair burnt terminals on compressors up to 5 tons. Gator-Lok's unique design makes installation a snap and requires no special tools.

Gator-Lok is made from high quality materials. Once installed properly, it provides multiple points of contact on the burnt terminal.

Gator-Lok can be easily installed in minutes, therefore giving the technician the ability to restore power to the unit, and eliminates the need to replace the compressor.

Each Gator-Lok Kit includes a set of three Gator-Loks (1 red, 1 blue and 1 black 10 gauge wire with 30-inch leads).



OIL PUMPS & ADAPTER KITS

Precisely and **exactly** the right amount of oil in the cleanest and **most efficient** manner. Allow for **all popular sizes** of oil cans and bottles to fit with our oil pumps.

CHARGE-OIL PUMP

MODEL 1700

It charges without pumping the compressor down thus reducing charging time by over 70%. Also avoids the embarrassment of spilling oil on the customer's premises. Provides the professional touch since oil can be accurately measured into the compressor without having to pour it from the can. Fits all popular brands of refrigeration oil.

Complete Adapter Kit supplied to accommodate most containers. The Charge-Oil Pump cap seals the can so pump need not be removed until can is empty. Thermal Charge-Oil Pump is a piston type high pressure pump designed to operate at pressures to 250 PSI. It pumps one quart in 20 full strokes of the piston. Pump is connected to compressor by refrigerant charging line or copper tubing from 1/4-inch male fitting.

Suitable for use with alkybenzene and POE oils.

PART NO	DESCRIPTION
1702	THERMAL CHARGE-OIL PUMP
1703	THERMAL CHARGE-OIL PUMP FOR 5 GALLON CAN



1702, 1703, 1751

REPAIR KIT FOR MODEL 1702 & 1703

MODEL 1705

Complete set of gaskets, bearings, rings, springs and washers for the repair of thermal oil pumps.

CHANGE-OIL PUMP

MODEL 1751

Change-Oil Pump is a companion to the famous Thermal Charge-Oil Pump. It has been designed for use in pumping oil from refrigeration compressors, marine engines, and other equipment where it is impossible to drain oil in the conventional manner. Removing oil from refrigeration compressors before dehydrating with vacuum is a necessity. Suction tube is 5/16-inch OD semirigid plastic, 15-inches long. Suction tubes up to 60-inch long can be used if necessary. Will not pump under pressure. Pumping capacity about 10 strokes per quart.

REPAIR KIT FOR MODEL 1751

MODEL 1751RK

Complete set of gaskets, bearings, rings, springs and washers for the repair of thermal oil pumps.

ADAPTER KIT

MODEL 1768

Adapter Kit for all popular cans and bottles of refrigerant oil. Kit contains 5 rings and one spacer to accommodate most oil containers.

ADAPTER KIT

MODEL 1770

Suction Adapter for aluminum Charge-Oil Pump. Converts Model 1702 Charge-Oil Pump into suction pump for refrigeration, marine and other similar applications where it is impossible to draw oil in the normal manner.

VACUUM PUMP ACCESSORIES

These vacuum accessories will help you make **easy** vacuum connections **many types** of systems.

MINI-VAC

MODEL 1833



Mini-Vac is a compact High Vacuum Manifold which provides a 3/8 flare yoke and an electronic vacuum gauge sensor port (sensor not included). Features a 3/8 packless diaphragm valve to isolate the vacuum pump from the system. The Mini-Vac mounts on the pump with a 3/8 quick coupler.

Pictured with optional digital vacuum gauge.

MANIFOLD GASKET SET

MODEL 1843

Gasket set for Model 1833 Mini-Vac.

MINI-VAC MANIFOLD + 0-30-INCH VACUUM GAUGE COMBO

MODEL 1834



Combination of Model 1833 Mini-Vac Manifold and 0-30-inch mechanical vacuum gauge which attaches to the sensor port.

VACUUM TEE**MODEL 1832**

Vacuum Tee for evacuating from two ports with one vacuum source. (2) 3/8 MFL x 3/8 quick coupler includes (2) 3/8 x 1/4 x 6ft. high vacuum hoses.

**HIGH VACUUM HOSE****MODEL 383814, 381414 & 383838**

3/8-inch Vacuum Hose provides faster evacuation with better capabilities. Tests prove vacuum pump capacity is reduced by 20% when standard 1/4-inch refrigerant hose is used.

PART NO	DESCRIPTION
383814-36	36-INCH HOSE, 3/8 FFL X 1/4 FFL 45°
383814-48	48-INCH HOSE, 3/8 FFL X 1/4 FFL 45°
383814-60	60-INCH HOSE, 3/8 FFL X 1/4 FFL 45°
383814-72	72-INCH HOSE, 3/8 FFL X 1/4 FFL 45°
383814-96	96-INCH HOSE, 3/8 FFL X 1/4 FFL 45°
381414-36	36-INCH HOSE, 1/4 FFL X 1/4 FFL 45°
381414-48	48-INCH HOSE, 1/4 FFL X 1/4 FFL 45°
381414-60	60-INCH HOSE, 1/4 FFL X 1/4 FFL 45°
381414-72	72-INCH HOSE, 1/4 FFL X 1/4 FFL 45°
381414-96	96-INCH HOSE, 1/4 FFL X 1/4 FFL 45°
383838-36	36-INCH HOSE, 3/8 FFL X 3/8 FFL
383838-48	48-INCH HOSE, 3/8 FFL X 3/8 FFL



High quality vacuum pump oil and sealants help **maintain** your vacuum pumps and **prolong** their life.

VACUUM PUMP OIL

MODELS 1810 & 1813



Thermal Vacuum Pump Oil keeps any high vacuum pump at maximum performance. No pump can deliver a lower pressure than its sealing oil’s vapor pressure. This oil must have the viscosity to lubricate and seal clearances in the pump’s moving parts at the extreme temperatures developed during continuous use. Thermal’s Vacuum Pump Oil is a premium quality mineral oil formulated to tolerate exposure to vacuums of 5 microns. Thermal’s Vacuum Pump Oil resists the formation of deposits and maintains its original lubricating properties over a long life. Thermal’s Vacuum Pump Oil offers very high vacuums, excellent lubrication, and long oil life. Available in 1 gallon plastic containers, 4 per case, or 1qt. bottles, 6 per case.

PART NO	CASE SIZE	GRAVITY, API	VISCOSITY	FLASH POINT	PRESSURE, MICRONS, HG, MAX
1810	(4) GALLON CONTAINERS	29.2	SUS AT 100°F, 335	450°F	5
1813	(6) QUART CONTAINERS	29.2	SUS AT 100°F, 335	450°F	5


LIQUI-VAC

MODELS 4036 & 4036-Q




- FEATURES**
- Sets up quickly
 - Seals to 1 micron
 - Remains flexible
 - Ready to use


A real time-saver in servicing cooling systems, Liqui-Vac is the only liquid sealant with the capacity of sealing high vacuum connections. It will positively seal high vacuum leaks around threads, through flared connections, face joints, wherever metal joins metal. Airserco Liqui-Vac sets up quickly, but remains flexible for easy disconnection. Liqui-Vac is resistant to most solvents, can seal to 1 micron, and withstands temperatures from -100°F to +325°F. Available in 4 oz. brush-in-cap cans, 12 per case, or in 1qt. cans.




EASY BRUSH ON APPLICATOR FOR:



THREAD CONNECTIONS



SOLDERED OR WELDED CONNECTIONS



MACHINE SURFACE CONNECTIONS

CHARG-CHECK

Accurately charge your refrigeration system with **Charg-Check**, available in a number of sizes to **suit your needs**.

CHARG-CHECK



FEATURES

- Comes in three sizes to suit any application, 1lb. (16oz.), 5lb. (80oz.), and 10lb. (160oz.) sizes cover the field from light domestic to heavy commercial.
- Allows you to measure out precise quantities of refrigerant.
- Helps speed up the charging process by letting you charge with heat. All cylinders except the 16oz. model will hold a Model 7020 Heater Assembly.
- Allows you to carry small quantities of refrigerant to the job, yet buy refrigerant in large quantities and keep the drum back at your shop.
- Is available in a steel carrying case to completely protect them from tough use. Cylinder need not be removed from the case as all connections and valves are accessible from front. Case forms a wstand to set on the floor or bench.
- Are easily used in the field. They hang onto system being charged by means of a top-mounted bail.
- Can be calibrated for ambient temperature variations by means of temperature correction chart on the side of the scale. This is required only if better than 2% accuracy is needed.
- Safety relief valve for protection.
- Plastic liquid level indicators.

R-12, R-22, R-502 MODELS

PART NO	CAPACITY	GRADUATION
7001	16 OZ	1/2 OZ
7002*	16 OZ	1/2 OZ
7005	80 OZ	1 OZ
7006*	80 OZ	1 OZ
7009	160 OZ	2 OZ
7010	160 OZ	2 OZ

HFC-134A MODELS WITH 1/4 SAE FITTINGS

PART NO	CAPACITY	GRADUATION
U7001	16 OZ (450 G)	1/8 OZ (5 G)
U7002*	16 OZ (450 G)	1/8 OZ (5 G)
U7005	80 OZ (450 G)	1 OZ (25 G)
U7006*	80 OZ (450 G)	1 OZ (25 G)
U7009	160 OZ (900 G)	2 OZ (50 G)
U7010	160 OZ (900 G)	2 OZ (50 G)

* CARRYING CASE INCLUDED

GASKET SETS AND REPAIR KITS

Charg-Check Repair kits contain a complete gasket set and replacement gauge.

PART NO	DESCRIPTION
7001GS	GASKET SET FOR 16 OZ CHARGE-CHECK
7001RK	REPAIR KIT FOR 16 OZ CHARGE-CHECK
7003GS	GASKET SET FOR 2-1/2 LB CHARGE-CHECK
7003RK	REPAIR KIT FOR 2-1/2 LB CHARGE-CHECK
7005GS	GASKET SET FOR 5 LB CHARGE-CHECK
7005RK	REPAIR KIT FOR 5 LB CHARGE-CHECK
7009GS	GASKET SET FOR 10 LB CHARGE-CHECK
7009RK	REPAIR KIT FOR 10 LB CHARGE-CHECK

CHARG-CHECK ACCESSORIES

Optional accessories for the **Charg-Check** Series charging cylinders

CARRYING CASES FOR THE CHARG-CHECK (PICTURED ON PAGE 24)

MODEL 7000

An ideal way to protect the Charg-Check cylinder from various damage including a broken sight glass. The carrying cases are constructed of 20 gauge steel and supplied with a durable powder coat finish. Optional accessories for the Charg-Check Series.

PART NO	DIMENSIONS	USED WITH
7007	4.25 W X 16.75 H X 3.625 D	7001 / U7001
7008	4.75 W X 23.5 H X 5 D	7005 / U7005
7013	6 W X 25 H X 7 D	7009 / U7009

CHARG-CHECK HEATER ASSEMBLIES

MODELS 7020 & 7024



7024, 7020

- Model 7020**
The 120 Volt heater assembly is threaded into the bottom of the cylinder to increase the speed of the charge.
- Model 7024**
The 240 Volt heater assembly is threaded into the bottom of the cylinder to increase the speed of the charge.

CHARGING SCALES

Convenient solution for refrigerant charging. **Easy to use**, even easier to carry around.

CHARGING SCALE

MODEL 4900

The 4900 refrigerant charge scale is the ideal choice for field service work. With a high resolution LCD screen that reads in both lbs. and kg., this scale comes packaged in a convenient carrying case and is powered by (1) 9 volt battery (included).

FEATURES

- Battery operated (9V) for ease of portability
- 220lbs. (100kg.) capacity
- High resolution LCD screen with backlight capability
- Automatically powers off
- 5g, 0.25oz. resolution
- Readout in lbs. or kg.
- Zero/Tare capable
- Weight 6.5lbs.
- Extra sturdy aluminum bound case



MANIFOLDS & GAUGES



For proper evacuation, charging, and diagnosis of refrigeration and air conditioning systems, the Thermal Engineering TS series 2-valve and 4-valve manifolds deliver the type of **quality and functionality** demanded by the discriminating service technician.

TS-500

2-VALVE MANIFOLD



The TS-500 2-Valve manifold offers great functionality combined with 'Made in the USA' quality. The hard coat anodized body, large bore construction, and double o-ring piston design, provide the essential elements for quick and easy evacuation and refrigerant charging.

FEATURES

- Heavy-duty anodized machined body with radius edges
- Ergonomic handles with 30 degree offset
- Double o-ring piston design
- Brass SAE wye fitting with hose hanging functionality

MODEL	DESCRIPTION
TS-500	2-VALVE MANIFOLD, R22, R404A, R410A
TS-500-60H	2-VALVE MANIFOLD, R22, R404A, R410A, WITH 60 INCH HOSE SET (9701 SERIES)

TS-1000

THE SHERMAN 4-VALVE TEST AND CHARGING MANIFOLD



The Sherman 4-Valve test and charging manifold is **Tough as a Tank™**. Designed by service technicians, the Sherman not only feels good in your hands, it significantly reduces evacuation time and allows for precise metering of refrigerant. In addition, the industries only double sight glass design provides excellent refrigerant visibility. The Sherman is a "must-have" for the discriminating service technician.

FEATURES

- Heavy-duty anodized machined body with radius edges
- Ergonomic handles with 30-degree offset for high and low side refrigerant
- Double sight glass design
- Large bore machine holes and 3/8 vacuum connection
- Double o-ring piston design
- Hose Hangers
- Hanging Hook
- Made in the USA



Designed to fit seamlessly with the DigiCool digital refrigerant manifold series, this manifold can be purchased individually or coupled to the Digi-Cool models 1250, 1200, and 1600.



MODEL	DESCRIPTION	VACUUM PORT	HI/LO CHARGE
TS-1000*	MANIFOLD ONLY	3/8	1/4
TS-1000-60H	WITH 60-INCH TRU PRO RYB HOSE SET & 3/8 45°	3/8	1/4
TS-1000-60HR	WITH 60-INCH REFLOC RYB HOSE SET & 3/8 45°	3/8	1/4
TS-1000-80	WITH R22, R404A, R410A 80MM GAUGES	3/8	1/4
TS-1000-80G	WITH R22, R404A, R410A 80MM GAUGES (GLYCERIN FILLED)	3/8	1/4

*Standard manifold is blue Custom colors and engraving available upon request (Minimum orders apply)

DIGITAL REFRIGERANT SYSTEM ANALYZER

DRSA-1600

DIGITAL REFRIGERANT SYSTEM ANALYZER

Thermal Engineering is pleased to introduce the DRSA 1600, an advanced, robust, and reliable A/C refrigeration manifold gauge built for professional HVAC/R technicians!

UTILIZATION OF THE DRSA 1600 HAS PROVEN TO PROVIDE THE FOLLOWING

- Provides rapid payback on investment
- Improves productivity—Average one week of pure profit per technician per year!
- Minimizes training time
- Reduces downtime
- Increases staff's trouble shooting capability
- Reduces costs on current maintenance contracts
- Simplifies cumbersome procedures
- Eliminates need for unnecessary or inappropriate repairs

FEATURES

- Compact Sleek design for easier handling
- Made for maximum robustness and durability
- Temperature probe for automatic superheat and subcooling readings
- 30 refrigerants are included onboard
- Updated pressure port design
- Attaches to the TS series manifolds using swivel fittings
- Dynamic offset bar graph clearly shows modulation of control valves, system behavior, and faults



1400 SERIES

Rugged design, top notch performance, high and low pressure gauges for all popular refrigerants in use today.

1400 SERIES GAUGE MANIFOLDS



The Thermal Engineering 1400 series manifolds are the ideal choice for the value driven service technician. The 1400 series body is forged brass with full size porting for maximum flow. The gauges include a rugged metal housing and the no flutter dial ensures accuracy. With hard to break steel knobs and 1/4-inch hose hangers, the 1400 series allows the service engineer to “get the job done right.”

FEATURES

- Forged brass body with hanger
- Rugged metal housing with no flutter gauge
- Easy to grip steel knobs
- 1/4-inch fittings and hose holders
- Double o-ring piston valve system

PART NO	REFRIGERANTS	MANIFOLD & HOSE HOLDER FITTINGS	HOSES	SCALE	SIZE/TYPE
1440	R12, R22, R502	1/4, 1/4	--	BAR / PSI	2-1/2, STEEL
1440-36C	R12, R22, R502 W/ 36-INCH HOSE SET	1/4, 1/4	36-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL
1440-60C	R12, R22, R502 W/ 60-INCH HOSE SET	1/4, 1/4	60-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL
1441	R22, R404A, R410	1/4, 1/4	--	BAR / PSI	2-1/2, STEEL
1441-36C	R22, R404A, R410 W/ 36-INCH HOSE SET	1/4, 1/4	36-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL
1441-60C	R22, R404A, R410 W/ 60-INCH HOSE SET	1/4, 1/4	60-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL
1442	R22, R134A, R407C	1/4, 1/4	--	BAR / PSI	2-1/2, STEEL
1442-36C	R22, R134A, R407C W/ 36-INCH HOSE SET	1/4, 1/4	36-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL
1442-60C	R22, R134A, R407C W/ 60-INCH HOSE SET	1/4, 1/4	60-RYB, 3 PACK	BAR / PSI	2-1/2, STEEL

Manifold and hose assemblies utilize V-line hoses.

REFRIGERANT GAUGES



PART NO	REFRIGERANTS	TYPE	SCALE	SIZE/TYPE
1440GB	R12, R22, R502	COMPOUND	BAR / PSI	2-1/2, STEEL
1440GR	R12, R22, R502	PRESSURE	BAR / PSI	2-1/2, STEEL
1441GB	R22, R404A, R410	COMPOUND	BAR / PSI	2-1/2, STEEL
1441GR	R22, R404A, R410	PRESSURE	BAR / PSI	2-1/2, STEEL
1442GB	R22, R134A, R407C	COMPOUND	BAR / PSI	2-1/2, STEEL
1442GR	R22, R134A, R407C	PRESSURE	BAR / PSI	2-1/2, STEEL
41GB80	R22, R404A, R410A	COMPOUND	°F / PSI	80MM, STEEL
41GR80	R22, R404A, R410A	PRESSURE	°F / PSI	80MM, STEEL
41GBG80	R22, R404A, R410A (GLYCERIN FILLED)	COMPOUND	°F / PSI	80MM, STEEL
41GRG80	R22, R404A, R410A (GLYCERIN FILLED)	PRESSURE	°F / PSI	80MM, STEEL

NOTE: Special gauges available upon request, minimum order quantities may apply.



CHARGING HOSES

Premium quality, **durable**, long lasting hoses made in the USA with a **4,000psi** minimum burst pressure.

TRU PRO CHARGING HOSE

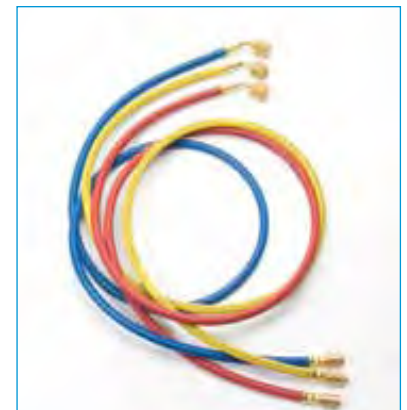
For those interested in premium quality, the Thermal Engineering Tru Pro Series refrigerant charge hose is the only choice. Made in the USA, these hose assemblies conform to UL 1963, SAE J-51, J-639, J-2196 and J-2197. With 4000psi minimum burst and a working pressure of 800psi these hoses are long lasting, durable, and come in a range of options to meet your specific requirements.

1/4 TRU PRO - 1/4 FFL X 1/4 FFL 45° AND BRASS DEPRESSOR				
LENGTH (FT)	YELLOW	BLUE	RED	PACKAGE SET (RED, YELLOW, BLUE)
3	9701-Y-3	9701-B-3	9701-R-3	9701-3-3
5	9701-Y-5	9701-B-5	9701-R-5	9701-3-5
10	9701-Y-10	9701-B-10	9701-R-10	9701-3-10
12	9701-Y-12	9701-B-12	9701-R-12	9701-3-12
15	9701-Y-15	9701-B-15	9701-R-15	9701-3-15
20	9701-Y-20	9701-B-20	9701-R-20	9701-3-20
25	9701-Y-25	9701-B-25	9701-R-25	9701-3-25
50	9701-Y-50	9701-B-50	9701-R-50	9701-3-50
100	9701-Y-100	9701-B-100	9701-R-100	9701-3-100
Suitable for R12, R22, R134A, R404A, R407C, R410A, R500, R502. Custom lengths and end fitting options available upon request.				



9701

1/4 TRU PRO - 1/4 FFL X 1/4 REFLOC ANTI-BLOW BACK FITTING				
LENGTH (FT)	YELLOW	BLUE	RED	PACKAGE SET (RED, YELLOW, BLUE)
3	9701RL-Y-3	9701RL-B-3	9701RL-R-3	9701RL-3-3
5	9701RL-Y-5	9701RL-B-5	9701RL-R-5	9701RL-3-5
10	9701RL-Y-10	9701RL-B-10	9701RL-R-10	9701RL-3-10
12	9701RL-Y-12	9701RL-B-12	9701RL-R-12	9701RL-3-12
15	9701RL-Y-15	9701RL-B-15	9701RL-R-15	9701RL-3-15
20	9701RL-Y-20	9701RL-B-20	9701RL-R-20	9701RL-3-20
25	9701RL-Y-25	9701RL-B-25	9701RL-R-25	9701RL-3-25
50	9701RL-Y-50	9701RL-B-50	9701RL-R-50	9701RL-3-50
100	9701RL-Y-100	9701RL-B-100	9701RL-R-100	9701RL-3-100
Suitable for R12, R22, R134A, R404A, R407C, R410A, R500, R502. Custom lengths and end fitting options available upon request.				



9701RL

CHARGING HOSES



TRU PRO CHARGING HOSE – BALL VALVE AND AUTOMOTIVE



9701BV



9701R134

For those interested in premium quality, the Thermal Engineering Tru Pro Series refrigerant charge hose is the only choice. Made in the USA, these hose assemblies conform to UL 1963, SAE J-51, J-639, J-2196 and J-2197. With 4000psi minimum burst and a working pressure 800psi these hoses are long lasting, durable, and come in a range of options to meet your specific requirements.

1/4 TRU PRO - 1/4 FFL X 1/4 FFL 45° AND BRASS DEPRESSOR WITH BALL VALVE

LENGTH (FT)	YELLOW	BLUE	RED	PACKAGE SET (RED, YELLOW, BLUE)
3	9701BV-Y-3	9701BV-B-3	9701BV-R-3	9701BV-3-3
5	9701BV-Y-5	9701BV-B-5	9701BV-R-5	9701BV-3-5
10	9701BV-Y-10	9701BV-B-10	9701BV-R-10	9701BV-3-10
12	9701BV-Y-12	9701BV-B-12	9701BV-R-12	9701BV-3-12

Suitable for R12, R22, R134A, R404A, R407C, R410A, R500, R502.
Custom lengths and end fitting options available upon request.

1/4 TRU PRO - 1/2 FE ACME X 14 MM MALE (RED AND BLUE) 1/4 TRU PRO - 1/2 FE ACME X 1/2 REFLOC FITTING (YELLOW)

LENGTH (FT)	YELLOW	BLUE	RED	PACKAGE SET (RED, YELLOW, BLUE)
5	9701R134-Y-5	9701R134-B-5	9701R134-R-5	9701R134-3-5
6	9701R134-Y-6	9701R134-B-6	9701R134-R-6	9701R134-3-6
8	9701R134-Y-8	9701R134-B-8	9701R134-R-8	9701R134-3-8
10	9701R134-Y-10	9701R134-B-10	9701R134-R-10	9701R134-3-10

Suitable for R134A.
Custom lengths and end fitting options available upon request.

Custom hose adapter, coupling and fitting solutions **tailored to your exact needs** and specifications.

BALL VALVE HOSE ADAPTER

Utilizing Thermal Engineering Tru Pro adapters, the service technician can connect to any 1/4-inch hose and control refrigerant flow by simply opening and closing the in-line ball valve. Easy to use and available in red, yellow, blue or as a complete set to meet your specific requirements. For 6-inch adapter orders remove suffix (5).

PART NO	DESCRIPTION
99901	1/4 MFL X 1/4 FFL X 6-INCH LENGTH RED TRU PRO ADAPTERS
99902	1/4 MFL X 1/4 FFL X 6-INCH LENGTH YELLOW TRU PRO ADAPTERS
99903	1/4 MFL X 1/4 FFL X 6-INCH LENGTH BLUE TRU PRO ADAPTERS
99904	1/4 MFL X 1/4 FFL X 6-INCH LENGTH (RED, YELLOW AND BLUE SET) TRU PRO ADAPTERS



CONVERSION ADAPTERS

The Thermal Engineering conversion adapter consists of a compact ball valve that is ideal for retrofitting standard refrigerant hoses, providing instant refrigerant shut off capabilities. Available in standard 1/4 and 5/16 sizes for refrigerant 410A.

PART NO	DESCRIPTION
TE-BV01R	1/4 SAE X 1/4 F SAE
TE-BV01Y	1/4 SAE X 1/4 F SAE
TE-BV01B	1/4 SAE X 1/4 F SAE
TE-BV01-3	1/4 SAE X 1/4 F SAE, SET OF 3
TE-BV02R	1/4 SAE X 5/16 F SAE
TE-BV02Y	1/4 SAE X 5/16 F SAE
TE-BV02B	1/4 SAE X 5/16 F SAE
TE-BV02-3	1/4 SAE X 5/16 F SAE, SET OF 3



ADAPTERS & FITTINGS

Custom hose adapter, coupling and fitting solutions **tailored to your exact needs** and specifications.

ANTI-BLOWBACK BRASS HOSE ADAPTER



Convert standard 1/4 hose to anti-blowback functionality.

PART NO	MALE	FEMALE	OTHER	PKG
TE-BARL14	1/4 SAE	1/4 SAE	W/ CORE AND DEPRESSOR	1

R-410A BRASS ADAPTER



Convert new R-410A system ports with 5/16 SAE connections to 1/4 SAE.

PART NO	MALE	FEMALE	OTHER	APPLICATION	PKG
TE-BA01	1/4 SAE	5/16 SAE	W/ CORE AND DEPRESSOR	R-410A INTERNATIONAL	1

R-410A BRASS ADAPTER



Convert new R-410A system ports with 5/16 SAE connections to 1/4 SAE at 45°.

PART NO	MALE	FEMALE	OTHER	APPLICATION	PKG
TE-BA0145	1/4 SAE	5/16 SAE	W/ CORE AND DEPRESSOR	R-410A INTERNATIONAL	1

ADDITIONAL END FITTING OPTIONS

Thermal Engineering understands that no two jobs are alike. In keeping with our commitment to serve the HVAC/R professional we offer a multitude of end fitting options custom tailored for your application. Listed below is a sample of the end fittings available in any combination. Please call us for your inquiries, 800 473-1754.

1/4 Anti-blow back	1/4 FFL	1/4 Hex Nut
1/2 Acme Anti-blow back	1/4 FFL 45°	1/4 Hex Nut 45°
1/2 Acme FFL	1/4 FFL 90°	1/4 Hex Nut 90°
1/2 Acme FFL 45°	1/2 Acme Hex Nut	In-line filter element
1/2 Acme FFL 90°	1/2 Acme Hex Nut 45°	(10 microns)
1/2 Acme 14mm	1/2 Acme Hex Nut 90°	

AUTOMOTIVE A/C COUPLERS



PART NO	DESCRIPTION
134ACR	HIGH SIDE X 14 MM R-134A COUPLER
134ACB	LOW SIDE X 14 MM R-134A COUPLER

BRASS FITTINGS

High quality brass refrigeration fittings.

SWIVEL FLARE CONNECTIONS

TEE WITH DEPRESSOR		
PART NO	DESCRIPTION	PKG
TE-SF01D	1/4 FE SAE SWIVEL NUT ON RUN	3
TE-SF02D	1/4 FE SAE SWIVEL NUT ON BRANCH	3
TEE WITHOUT DEPRESSOR		
PART NO	DESCRIPTION	PKG
TE-SF01	1/4 FE SAE SWIVEL NUT ON RUN	3
TE-SF02	1/4 FE SAE SWIVEL NUT ON BRANCH	3
3/8-INCH SAE TEE		
PART NO	DESCRIPTION	PKG
TE-SF03	3/8 SAE X 3/8 FE SAE SWIVEL NUT X ACCESS	1
TE-SF04	3/8 SAE X ACCESS X 3/8 FE SAE SWIVEL NUT	1



COPPER BRAZE TEES

PART NO	SLIP FIT CONNECTING LINE SIZE	OVERALL LENGTH	PKG
TE-BT01	1/4 OD	2-1/8	3
TE-BT02	5/16 OD	2-1/8	3
TE-BT03	3/8 OD	2-1/8	3
TE-BT04	1/2 OD	2-1/8	3
TE-BT05	5/8 OD	2-1/2	1
TE-BT06	3/4 OD	3	1
TE-BT07	7/8 OD	3-1/2	1
TE-BT08	1-1/8 OD	3-13/16	1
TE-BT09	3/16 OD	4	2
TE-BT10	1/4 OD	4	2
TE-BT11	5/16 OD	4	2



BRASS BODIES



TE-CRT01

STRAIGHT		
PART NO	DESCRIPTION	PKG
TE-BB01	1/8 OD	3
TE-BB02	3/16 OD	3
TE-BB03	1/4 OD	3
TE-BB04	5/16 OD	3
TE-BB05	3/8 OD	3
TE-BB06	1/2 OD	3

MULTISTEP		
PART NO	DESCRIPTION	PKG
TE-BB07	3/16 X 1/4 OR 3/8 STEPS	5
TE-BB08	3/16, 1/4, 5/16 1/2 STEPS	3
TE-BB09	1/8 X 3/16, 1/4 OR 5/16 STEPS	3

CORE REMOVAL TOOL



TE-CRT01

This core removal tool is about the size of a pen. Store extra cores within the body of this handy tool.

PART NO	DESCRIPTION
TE-CRT01	FOR 1/4 VALVE CORE TOOL
TE-CRT02	VALVE CORE REMOVAL TOOL



TE-CRT02

VALVE CORE DEPRESSOR



PART NO	DESCRIPTION	PKG
7025	FOR 1/4 MALE FLARES	1

COPPER TUBE EXTENSION

PART NO	DESCRIPTION	PKG
TE-CTX01	1/8 OD	5
TE-CTX02	3/16 OD	5
TE-CTX03	1/4 OD	5
TE-CTX04	5/16 OD	5
TE-CTX05	3/8 OD	5
TE-CTX06	1/2 OD	3
PART NO	DESCRIPTION	PKG
TE-CTX07	1/8 EXT.; 3/16, 1/4 AND 5/16 BODY STEPS	5
TE-CTX08	3/16 EXT.; 1/4 AND 3/8 BODY STEPS	5



ALTERNATIVE FLARE CONNECTIONS

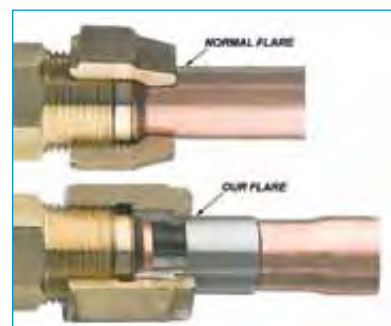
Leakage often occurs due to flare connections that were or seem perfect but became unreliable in time. With Thermal Engineering's patented solution, the flare is replaced by a renewable copper trumpet ring as a seal. Renewing this copper ring after component replacement ensures a new and tight connection. The unique construction of the flare-adaptor avoids tension and force on the "flare-connection." The ring is fully supported and only pressed down on the SAE-seat by a stainless steel core. These connectors eliminate the deformities that occur to standard flare connectors including cracking and leaking due to excessive vibration.

FEATURES

- Reliable connection change from flare into brazing
- High tightness degree
- Easy and fast component replacement (the copper seal must always be renewed)
- The use of frost grooves allows application in wet environments

STANDARD		REDUCING	
PART NO	DESCRIPTION	PART NO	DESCRIPTION
TERF-2	1/4 SAE FLARE X 1/4 ODF	TERF-3x2	3/8 SAE FLARE X 1/4 ODF
TERF-3	3/8 SAE FLARE X 3/8 ODF	TERF-4x2	1/2 SAE FLARE X 1/4 ODF
TERF-4	1/2 SAE FLARE X 1/2 ODF	TERF-4x3	1/2 SAE FLARE X 3/8 ODF
TERF-5	5/8 SAE FLARE X 5/8 ODF	TERF-5x3	5/8 SAE FLARE X 3/8 ODF
TERF-6	3/4 SAE FLARE X 3/4 ODF	TERF-5x4	5/8 SAE FLARE X 1/2 ODF
TERF-7	7/8 SAE FLARE X 7/8 ODF	TERF-6x5	3/4 SAE FLARE X 5/8 ODF
TERF-9	1-1/8 SAE FLARE X 1-1/8 ODF	TERF-7x6	7/8 SAE FLARE X 3/4 ODF
TERF-11	1-3/8 SAE FLARE X 1-3/8 ODF		

TERF SERIES

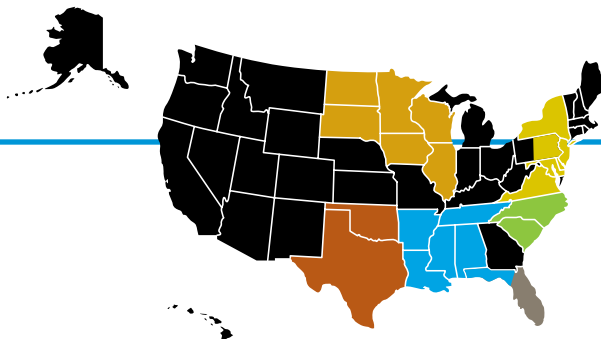


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9701-B-12	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Blue	30
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9701-B-25	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Blue	30
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9701-R-10	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
9701-R-12	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
9701-R-15	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
9701-R-20	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
9701-R-25	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
9701-R-50	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Red.....	30
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9701-Y-20	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Yellow	30
9701-Y-25	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Yellow	30
9701-Y-50	1/4 Hose - 1/4FL x 1/4FL 45° and Brass Depressor - Yellow	30
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9701RL-R-12	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
9701RL-R-15	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
9701RL-R-20	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
9701RL-R-25	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
9701RL-R-50	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
9701RL-R-100	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Red	30
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9701RL-Y-50	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Yellow.....	30

9701RL-Y-100	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - Yellow.....	30
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9701RL-3-10	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
9701RL-3-12	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
9701RL-3-15	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
9701RL-3-20	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
9701RL-3-25	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
9701RL-3-50	1/4 Hose - 1/4FL x 1/4 RefLoc anti-blow back 45° - (Set of 3).....	30
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WARRANTY

TERMS OF SALE

Minimum Order \$50.00

Terms – Net 30 Days

WARRANTY

1 – Year from date of purchase for all products

Vacuum Pump Warranty – 60 day over the counter exchange

After 60 days, return to Thermal Engineering w/proof of purchase for repair or exchange

Return Policy – All merchandise returned to the factory for exchange or repair

At Thermal Engineering's discretion

Freight Policy – Orders over \$1,750.00 for Pre-Season customers shipped prepaid

Orders over \$2,500.00 for standard customers shipped Prepaid

All products sold are warranted against defects in workmanship and/or materials under normal use for one year. Warranty claims resulting from obvious product abuse, misuse such as broken parts or lack of maintenance, including failure to keep vacuum pump filled with clean oil, will not be honored as warranty repair, but will incur the cost of repair for said item. If the customer defaces any product (IE: technicians initials on any part of the tool) it will not void the warranty, but an over the counter exchange can not be honored.

For Repair please return to:

Thermal Engineering Company

7555 Tyler Ave.

Mentor, OH 44060

440 946-2700

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